

REMARKS

By the foregoing Amendment, Claims 1 and 16 have been amended, and new Claims 17-32 have been added. Favorable reconsideration of the application is respectfully requested.

Applicant wishes to initially thank the Examiner for the telephone interview on February 2, 2006, in which the Examiner telephoned the undersigned to indicate that Claim 1 would be allowable if combined with the subject matter of Claim 6, in view of the international search, and in which the Examiner indicated that he would be able to make the amendment by way of an Examiner's Amendment for allowance of the application. No agreement was reached, and on February 6, 2006, the undersigned telephoned the Examiner to indicate that the Applicant wished to receive a written Office Action affording the opportunity to respond.

Claims 1-5 were rejected under 35 U.S.C. §102(b) on the grounds of anticipation by Hartigan, or alternatively under 35 U.S.C. §103(a) on the grounds of obviousness from Hartigan. Hartigan describes a connecting union 12 that connects glass capillary tubing 47 to glass lined stainless steel tubing 46 in a butt-to-butt union. The connecting union 12 is designed such that when polymeric ferrules are used within the connecting union, there is essentially a ferrule-to-ferrule orientation which eliminates dead volume.

Claim 1 has been amended to recite "wherein the separation column, transfer tubing, and end fitting are assembled as a permanently joined sealed integral unit." New Claim 17 similarly recites "wherein the separation column, transfer tubing, and end

fittings are assembled as a permanently joined sealed integral unit.” Support for this amendment can be found in the specification at page 4, lines 9-11. The Hartigan system differs from the present invention in that Hartigan does not describe a sealed integral system that eliminates user connections at each end of the separation column. The Hartigan system still requires the user to assemble the connecting union and associated ferrules to connect the tubing.

It is respectfully submitted that the primary advantage of the present invention lies in the importance of avoiding an end user fitting connecting tubing with a column assembly. At the very fine volumes involved, any additional volume created at the fittings is a serious source of analytical discrepancy: the connecting tubing has to be perfect with very clean perpendicular cuts to within a few microns to ensure that deleterious volumes are not introduced that in a nano capillary column will significantly compromise the chromatographic separation. It is simply not possible for end users to cut the ends of the connecting tubing with the required single micron order accuracy, in order to avoid volumes and space against the frit. It is respectfully submitted that Hartigan does not teach, disclose or suggest a liquid chromatography system in which a separation column, transfer tubing, and end fitting are assembled as a permanently joined sealed integral unit, as is claimed, and that Claims 1-5 are novel and inventive over Hartigan. It is therefore respectfully submitted that the rejection of Claims 1-5 on the grounds of anticipation by Hartigan, or alternatively on the grounds of obviousness from Hartigan, should be withdrawn.

Claim 5 was rejected under 35 U.S.C. §103(a) on the grounds of obviousness from Hartigan in view of Najafabadi. The Examiner indicated that Claim 5 differed from Hartigan in reciting the use of a protective sheath. Najafabadi was cited as disclosing the use of a shield to prevent scratching that would cause a fracture. It is respectfully submitted that Hartigan and Najafabadi do not teach, disclose or suggest a liquid chromatography system in which a separation column, transfer tubing, and end fitting are assembled as a permanently joined sealed integral unit, as is claimed, and that Claim 5 is novel and inventive over Hartigan and Najafabadi, whether taken separately or in combination. It is therefore respectfully submitted that the rejection of Claim 5 on the grounds of obviousness from Hartigan in view of Najafabadi should be withdrawn.

Claims 6-14 were rejected under 35 U.S.C. §103(a) on the grounds of obviousness from Hartigan alone or Hartigan in view of Najafabadi, and further in view of Anton and Antocci. It is respectfully submitted that Hartigan, Najafabadi, Anton and Antocci do not teach, disclose or suggest a liquid chromatography system in which a separation column, transfer tubing, and end fitting are assembled as a permanently joined sealed integral unit, as is claimed, and that Claims 6-14 are novel and inventive over Hartigan, Najafabadi, Anton and Antocci, whether taken separately or in combination. It is therefore respectfully submitted that the rejection of Claims 6-14 on the grounds of obviousness from Hartigan alone, or Hartigan in view of Najafabadi, and further in view of Anton and Antocci should be withdrawn.

Claim 15 was rejected under 35 U.S.C. §103(a) on the grounds of obviousness from Hartigan in view of Upchurch or Yang. The Examiner indicated that Claim 15

differed from Hartigan in reciting use of a glass lined metal tube. Upchurch was cited as disclosing use of a glass lined stainless steel column to avoid compatibility problems, and Yang was cited as disclosing that a glass lined stainless steel column is interchangeable with a glass column. It is respectfully submitted that Hartigan, Upchurch and Yang do not teach, disclose or suggest a liquid chromatography system in which a separation column, transfer tubing, and end fitting are assembled as a permanently joined sealed integral unit, as is claimed, and that Claim 15 is novel and inventive over Hartigan, Upchurch and Yang, whether taken separately or in combination. It is therefore respectfully submitted that the rejection of Claim 15 on the grounds of obviousness from Hartigan in view of Upchurch or Yang should be withdrawn.

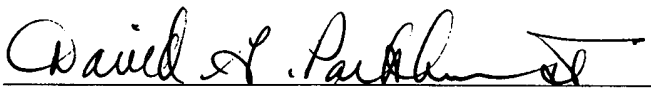
Claim 16 was rejected under 35 U.S.C. §103(a) on the grounds of obviousness from Hartigan in view of Garguilo. The Examiner indicated that Claim 16 differed from Hartigan in reciting gluing. Garguilo was cited as disclosing gluing to join two capillaries to maintain their relative position. Garguilo is directed to preventing band broadening downstream of a packed capillary column, and joining the smaller downstream tube to the larger upstream packed capillary column simply to maintain their relative positions. It is respectfully submitted that Hartigan and Garguilo do not teach, disclose or suggest a liquid chromatography system in which a separation column, transfer tubing, and end fitting are assembled as a permanently joined sealed integral unit, as is claimed, and that Claim 16 is novel and inventive over Hartigan and Garguilo, whether taken separately or in combination. It is therefore respectfully submitted that the

rejection of Claim 16 on the grounds of obviousness from Hartigan in view of Garguilo should be withdrawn.

In light of the foregoing amendments and remarks, it is respectfully submitted that the application should now be in condition for allowance, and an early favorable action in this regard is respectfully requested.

Respectfully submitted,

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